

10/030,425

=> s 131 and 132
L33 0 L31 AND L32

06/30/07

=> d 131 kwic

L31 ANSWER 1 OF 1 USPATFULL

PI US 5733531 19980331

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SUMM . . . nm. It is the principal cause of the sunburn reaction and it is also the most effective in stimulating the **tanning** reaction in the skin. UVC radiation (200-290 nm) from the sun does not reach the surface of the earth, although. . . the dangers posed by UVA and UVB radiation. The UVA band, which extends from 320-400 nm, can also cause the **tanning** reaction. UVA radiation can also cause sunburns, but its capacity to do so is less than that of UVB radiation.

SUMM . . . sunscreens effectively block only UVB radiation. As stated above, UVB radiation is more capable than UVA radiation of causing the **tanning** and burning reactions. Therefore, if one is using a sunscreen that blocks UVB radiation he/she will tend to stay in the sun for an extended period of time because the immediate effects of the sun **tan**/burn are not evident. The problem is that UVA is still penetrating the skin and although it is not causing any. . .

SUMM . . . diminish the penetration of UV radiation to the cells of the epidermis. These sunscreens are typically applied in a cream, oil, lotion, alcohol or gel vehicle and they are usually colorless because they do not contain any visible light-absorbing chemicals. The. . . cinnamate and cinoxate), salicylates (homomethyl salicylate), anthranilates such as menthyl anthranilate, 2-ethylhexyl-2-cyano-3,3-diphenyl acrylate, 2-phenyl benzimidazole-5-sulfonic acid, digalloyl trioleate, 3-(4-methyl benzylidene) **camphor**, 4-isopropyl dibenzoyl methane, butyl methoxy dibenzoyl methane, 2-ethyl-2-cyano-3,3'-diphenyl acrylate. To date, more than twenty-one such chemicals have been approved by. . .

SUMM . . . the metal oxide. These particles have a diameter an order of magnitude smaller (i.e., measuring about 0.01-0.1.mu.) than the "standard" pigment-grade sized particles (measuring about 0.25.mu.) described above.

SUMM . . . object of the invention to provide an inherently non-water-soluble organic sunscreen component that is not restricted to use in an oil phase of a sunscreen emulsion.

SUMM . . . the invention is to provide a sunscreen component that is miscible with a water-based sunscreen; for example, to adapt previously oil-based sunscreen components for use in a water-based sunscreen.

SUMM . . . are inherently difficult to disperse by virtue of certain surface properties. For example, the particles may be composed of an oil-soluble material that is not water-soluble but for the encapsulating matrix; i.e., the oil-solubilizing properties are masked by the encapsulating matrix, rendering the encapsulated material dispersible in water.

SUMM . . . waxes prepared by esterification of natural plant-derived fatty acids and alcohols; various grades of paraffin waxes; and natural and synthetic oils.

SUMM . . . of polymerized alkenes and alpha alkenes with molecular weights greater than 100 g/mole; ethylene-acrylic acid copolymers; ethylene-vinyl acetate copolymers; and lipid and protein-derivatives.

SUMM . . . PABA and PABA derivatives, cinnamates, salicylates, anthranilates such as menthyl anthranilate, 2-ethylhexyl-2-cyano-3,3-diphenyl acrylate, 2-phenyl benzimidazole-5-sulfonic acid, digalloyl trioleate, 3-(4-methyl benzylidene) **camphor**, 4-isopropyl dibenzoyl methane, butyl methoxy dibenzoyl methane, 2-ethyl-2-cyano-3,3'-

diphenyl acrylate. Inorganic agents include but are not limited to kaolin, talc, titanium.

SUMM . . . an encapsulated organic sunscreen component that, by virtue of its inert encapsulating exterior is not restricted to use in the oil phase of a sunscreen emulsion. Thus, the encapsulated sunscreen component will be dispersible in a water-based sunscreen, if desired. Inherently oil-soluble sunscreen components may thus be adapted for use in a water-based sunscreen, and thus may be rendered water-dispersible. In addition,

SUMM . . . invention may also be incorporated by known blending methods into a variety of cosmetic products such as lipstick, eye-shadow, foundations, moisturizer, rouge and the like to form cosmetics having an increased ability to prevent damage to underlying skin by the action.

SUMM . . . carriers for forming the emulsions described herein include SD alcohol, lanolin, glyceryl stearate, cocoa butter, sorbitan sesquioleate, propylene glycol, mineral oil, isopropyl myristate, petrolatum and acrylic polymers. Mixtures of two or more of these materials may also be used. These materials.

DETD The matrices include wax matrices, as described below, as well as polymer matrices such as commercially accepted natural oils and their derivatives (i.e., hydrogenated or oxidized) and synthetic oils, and lipid and protein derivatives. Natural oils include but are not limited to plant-derived oils, such as castor, soybean, sesame, safflower, wheat germ, etc.; synthetic oils include but are not limited to silicones, cyclomethicone, etc.

DETD . . . as derivatives of salicylic acid, benzoic acid, cinnamic acid and benzophenone, benzotriazoles aryl esters, substituted acrylonitrile, metallic complexes and inorganic pigments. The invention should not be limited to the use of these specific materials, however, since any UV additive which serves.

DETD . . . heated to a temperature required to melt and liquify all materials. The combination is then mixed to provide a homogeneous oil phase. The oil phase may also contain oil-soluble surfactants, e.g., at a concentration of 0.1-10%. A quantity of water, e.g., 40-90% of final formulation, is separately heated to the same or a higher temperature as the oil phase, the temperature preferably does not exceed 100 degrees centigrade. The water phase may contain water-soluble surfactants, e.g., at concentrations within the range 0.1-10%. Maintaining temperature, the oil phase is emulsified into the water phase using a high speed mixer, colloid mill, homogenizer, or ultrasonic processor. Once the.

DETD . . . may be dispersed in the liquified matrix material using a high speed mixer, colloid mill, homogenizer, or ultrasonic processor. The oil phase may also contain oil-soluble surfactants, e.g., at a concentration of 0.1-10% to enhance the degree of dispersion of particulate material and/or emulsification. A quantity of heated water is added, and the oil phase emulsified into the water phase as above. Once emulsification is complete, the resultant fluid is cooled to room temperature.

DETD . . . synthetic waxes prepared by esterification of natural plant-derived fatty acids and alcohols; various grades of paraffin waxes; and matrices including lipids, proteins, and their derivatives. Other materials included herein as examples of waxes, comprise, e.g., polymeric materials such as alkylated vinyl.

DETD For solid inorganic particulate UV attenuating material, 15 gms of Polywax 500 (polyethylene wax-Petrolite) and 1 gm of the oil-soluble nonionic dispersant Capmul GMO (glyceryl mono/dioleate-Karlshammus U.S.A.) are combined and heated to 90 degrees centigrade to form a liquid.

DETD . . . sunscreens are organic and water-insoluble, and thus are not

compatible with water-based sunscreen formulae. Water-based sunscreens are often preferred over oil-based sunscreens by virtue of their lower cost and certain aesthetic considerations, e.g., less greasiness. Encapsulation of a sunscreen agent in an inert wax capsule converts an oil-soluble sunscreen agent into a water-dispersible agent. For example, the oil-soluble common organic sunscreen octyl methoxycinnamate (OMC) was encapsulated in an accepted cosmetic wax, carnauba, at a ratio of one part . . . part carnauba wax. The OMC/carnauba wax particles were then modified with an aqueous gel of carbopol polymeer, an aqueous soluble **polymer** of polyacrylic acid (BF Goodrich, Inc.), at a resultant active concentration of 5% OMC. It is to be noted that this simple formulation contains no additional cosmetic oil normally needed to formulate a sunscreen with OMC. The sun protection factor (SPF) of the resultant sunscreen formula was determined. . . .

DETD Inorganic sunscreen agents that may by nature be dispersible in either of the oil or water phases of a conventional cosmetic formulation are normally placed in oil in order to attempt to provide some degree of waterproofness to the particulate inorganic UV attenuating agent. This invention, by . . . for encapsulation (i.e., that bind to the skin to provide waterproofness) eliminates the need to include the agent in an oil phase, thereby increasing the options for the cosmetic formulator in providing a waterproof sunscreen formulation.

DETD . . . further embodiments of the invention, be incorporated into a variety of cosmetic products such as, for example, lipstick, eyeshadow, foundations, **moisturizers**, rouge, hair products such as shampoos and conditioners, and other personal care products to enhance the ability of these formulations. . . .

DETD . . . such as thickeners, softeners, superfatting agents, waterproofing agents, emollients, wetting agents and surface-active agents, as well as preservatives, anti-foam agents, **perfumes** and mixture thereof, or any other compatible ingredient usually employed in cosmetics.

CLM What is claimed is:

6. The component of claim 1, said matrix comprising a material selected from the group consisting of: vinyl pyrrolidone **polymer**; long chain alcohol; long chain carboxylic acid; propylene glycol ester of fatty acid; ethene homopolymer; polymerized alkene and alpha alkene. .

. . the group consisting of benzophenone, cinnamate, salicylate, aminobenzoic acid ester, menthyl anthranilate, 2-ethylhexyl-2-cyano-3,3-diphenyl acrylate, 2-phenylbenzimidazole-5-sulfonic acid, digalloyl trioleate, 3-(4-methyl benzylidene) **camphor**, 4-isopropyl dibenzoyl methane, butyl methoxy dibenzoyl methane, 2-ethyl-2-cyano-3,3'-diphenyl acrylate.

. . component of claim 10, said inorganic UV-attenuator being selected from the group consisting of a metallic complex and an inorganic **pigment**.

=> s us5496565/pn

L34 1 US5496565/PN

=> s l34 and sodium citrate?

453965 SODIUM

77690 CITRATE?

29622 SODIUM CITRATE?

(SODIUM(W)CITRATE?)

L35 0 L34 AND SODIUM CITRATE?

10/030,425

=> s l34 and sodium?

454231 SODIUM?

L36 1 L34 AND SODIUM?

=> d kwic

L36 ANSWER 1 OF 1 USPATFULL

PI US 5496565 19960305

DETD . . . 1.000

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C.sub.12 - C.sub.15 alkyl benzoate

4.000

PEG-5 glyceryl stearate 1.500

PEG-5 stearyl stearate 1.500

Squalane 0.500

Cetyl alcohol 2.000

Carbopol 934 0.200

Shea butter 2.000

Bisabolol 0.800

Allantoin 0.200

Sodium hyaluronate 0.100

Panthenol 1.000

Fully demineralized water
to 100.000

=> s cellulose

L37 193585 CELLULOSE

=> s l34 and l37

L38 1 L34 AND L37

=> d kwic

L38 ANSWER 1 OF 1 USPATFULL

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SUMM (a) microcrystalline cellulose,

=> d his

(FILE 'HOME' ENTERED AT 11:21:26 ON 30 JUN 2003)

FILE 'USPATFULL' ENTERED AT 11:21:36 ON 30 JUN 2003

L1 1 S US5733531/PN

L2 147695 S PIGMENT?

L3 56809 S LIPID?

L4 82843 S ANTIOXIDANT?

L5 1 S L1 AND L2

L6 12734 S L3 AND L4

L7 0 S L6 AND L5

L8 1 S L5 AND L3

L9 0 S L8 AND L4

L10 0 S RETINOL AND L8

L11 0 S VITAMIN E AND L8

L12 45964 S VITAMIN?

L13 0 S L12 AND L8

L14 527297 S TAN?

L15 1 S L14 AND L8

L16 218351 S MOISTUR?

L17 1 S L15 AND L16

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L18	27988	S	PERFUME?
L19	1	S	L17 AND L18
L20	15189	S	REPELLENT?
L21	0	S	L19 AND L20
L22	367	S	DEET
L23	296	S	L20 AND L22
L24	0	S	L19 AND L22
L25	1	S	L19 AND CAMPHOR?
L26	515670	S	OIL?
L27	1	S	L26 AND L25
L28	1	S	SOCIUM CITRATE?
L29	29622	S	SODIUM CITRATE?
L30	0	S	L29 AND L27
L31	1	S	POLYMER AND L27
L32	454231	S	SODIUM?
L33	0	S	L31 AND L32
L34	1	S	US5496565/PN
L35	0	S	L34 AND SODIUM CITRATE?
L36	1	S	L34 AND SODIUM?
L37	193585	S	CELLULOSE
L38	1	S	L34 AND L37

=> s l31 and l37

L39	0	L31 AND L37
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NEWS	41	May 19	RAPRA enhanced with new search field, simultaneous left and

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right truncation
NEWS 42 Jun 06 Simultaneous left and right truncation added to CBNE
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HIGHEST GRANTED PATENT NUMBER: US6584613

HIGHEST APPLICATION PUBLICATION NUMBER: US2003121088

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=> s us5733531/pn

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L2 147695 PIGMENT?

=> s lipid?

L3 56809 LIPID?

=> s antioxidant?

L4 82843 ANTIOXIDANT?

=> s l1 and l2

L5 1 L1 AND L2

=> s l3 and l4

L6 12734 L3 AND L4

=> s l6 and l5

L7 0 L6 AND L5

=> s l5 and l3

L8 1 L5 AND L3

=> s l8 and l4

L9 0 L8 AND L4

=> s retinol and l8

2625 RETINOL

L10 0 RETINOL AND L8

=> s vitamin e and l8

30434 VITAMIN

2146014 E

10257 VITAMIN E

(VITAMIN(W)E)

L11 0 VITAMIN E AND L8

=> d vitamin? and l8

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IC, ICM, ICS, EXF (STD is the default)
STD.EX ----- STD for original and latest publication
TRIAL ----- AN, TI, INCL, INCLM, INCLS, NCL, NCLM, NCLS, IC,
ICM, ICS

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L8 ANSWER 1 OF 1 USPATFULL
United States Patent

Patent Number: 5733531
Date of Patent: 31 Mar 1998

Composite UV sunblock compositions

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Filed: 1 Jun 1994

Publication Details

PATENT INFORMATION: US 5733531 31 Mar 1998 <--

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Continuation-in-part of Ser. No. US 1994-231567, filed on 22 Apr 1994, now
abandoned
which is a continuation-in-part of Ser. No. US 1993-101661, filed on 4 Aug
1993, now patented, Pat. No. US 5587148, Pat. No. 5587148
which is a continuation of Ser. No. US 1991-704250, filed on 22 May 1991, now
abandoned
which is a continuation-in-part of Ser. No. US 1991-651696, filed on 5 Feb
1991, now patented, Pat. No. US 5223250, Pat. No. 5223250

Int. Cl. A61K007-42; A61K007-44; A61K009-10; A61K009-14
Issue U.S. Cl. 424/059.000; 424/060.000; 424/063.000; 424/064.000;
424/400.000; 424/401.000; 514/844.000; 514/847.000;
514/938.000
Current U.S. Cl. 424/059.000; 424/060.000; 424/063.000; 424/064.000;
424/400.000; 424/401.000; 514/844.000; 514/847.000;
514/938.000
Field of Search 424/59; 424/60; 424/63; 424/64; 424/400; 424/401;
514/844; 514/847; 514/938

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Art Unit - 127

Primary Examiner - Dodson, Shelley A.

Attorney, Agent or Firm - Williams, Kathleen M.

25 Claim(s)

ABSTRACT

The invention encompasses topical sunblock formulae for shielding skin from ultraviolet radiation, and a composite sunblocking component thereof. The sunblocking component of the formula includes an effective amount of a plurality of particles having diameters in the range of about 0.01-100 microns, each particle including a matrix and a UV-attenuating compound incorporated into the matrix. The composite sunblocking component may include a particle that is colored or transparent, depending upon the matrix, UV-attenuating compound and the particle size. The sunblocking component is dispersible in water and thus in water-based dermatological carriers. The formula includes these particles dispersed within a dermatologically acceptable liquid carrier in at least an amount sufficient to shield substantially all of the skin over which the formula is applied from hazardous effects of ultraviolet radiation.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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(FILE 'HOME' ENTERED AT 11:21:26 ON 30 JUN 2003)

FILE 'USPATFULL' ENTERED AT 11:21:36 ON 30 JUN 2003

L1	1 S US5733531/PN
L2	147695 S PIGMENT?
L3	56809 S LIPID?
L4	82843 S ANTIOXIDANT?
L5	1 S L1 AND L2
L6	12734 S L3 AND L4
L7	0 S L6 AND L5
L8	1 S L5 AND L3
L9	0 S L8 AND L4
L10	0 S RETINOL AND L8
L11	0 S VITAMIN E AND L8

=> s vitamin?

L12 45964 VITAMIN?

=> s l12 and l8

L13 0 L12 AND L8

=> s tan?

L14 527297 TAN?

=> s l14 and l8

L15 1 L14 AND L8

=> s moistur?

10/030,425

L16 218351 MOISTUR?

=> s l15 and l16

L17 1 L15 AND L16

=> s perfume?

L18 27988 PERFUME?

=> s l17 and l18

L19 1 L17 AND L18

=> s repellent?

L20 15189 REPELLENT?

=> s l19 and l20

L21 0 L19 AND L20

=> s deet

L22 367 DEET

=> s l20 and l22

L23 296 L20 AND L22

=> s l19 and l22

L24 0 L19 AND L22

=> s l19 and camphor?

16209 CAMPHOR?

L25 1 L19 AND CAMPHOR?

=> s oil/

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=> s l26 and l25

L27 1 L26 AND L25

=> s socium citrate?

68 SOCIUM

77690 CITRATE?

L28 1 SOCIUM CITRATE?

(SOCIUM(W) CITRATE?)

=> s sodium citrate?

453965 SODIUM

77690 CITRATE?

L29 29622 SODIUM CITRATE?

(SODIUM(W) CITRATE?)

=> s l29 and l27

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=> s polymer and l27

372226 POLYMER

L31 1 POLYMER AND L27

=> s sodium?

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